

REMARKS

Reconsideration and withdrawal is requested of the rejection of all the claims under §103 in view of the foregoing amendments and the following remarks.

The Rejections

All of the pending elected claims (23, 25, 26, 28-36) were rejected under §103 over the new combination of the newly applied Kani reference in view of the Arnold and Duhaime references. All of the claims were also rejected under §103 over the new combination of Duhaime in view of Arnold and Kani.

Kani

Kani discloses a one-piece squeeze container 1 with a filler inlet 2, a dispensing outlet 5 and an integral closure cap 4. The cap 5 has a hollow interior which communicates through the outlet 5 with the interior of the container 1. The hollow closure cap 4 and the container 1 are simultaneously blow molded from the same parison without any flash section and without any compression molding. After blow molding, the container is filled through the inlet 2 which is then sealed. Subsequently, the end user breaks off and separates the cap 4 at the neck 5' from the container 1 to uncover the outlet 5 through which some of the contents is dispensed. Thereafter, the closure cap 4 may be releasably snap fit over the rib 3 of the container neck to releasably close the dispensing outlet 5 of the container. The cap may be removed and replaced as desired to dispense the contents of the squeeze container.

Undisputedly, Kani does not disclose any flash being formed, any compression molding, any heat welding, any permanent attachment of the cap to the container, any

multilayered container, any multilayered cap, and/or either the container or the cap having any hydrocarbon fuel vapor barrier layer of a polymeric material.

Arnold

Arnold discloses a squeeze container 10 for shampoo with a body 12 which is blow molded with a large fill port 16, a small dispensing port 18 and a compression molded integral closure flap 14 with live hinges 34, 50, a first closure portion 40 with snap fingers 46 and a bead 54 for releasably closing the fill port 16, and a second closure portion 42 with a plug 48 for releasably closing the dispensing port 18. The container is initially filled (and may be refilled) through the large port 16 which is closed by the portion 40 and bead 54 and releasably retained by snap fingers 46.

In use, when squeezing the container, its contents are dispensed through the small port 18 which is releasably opened and closed by the plug 48 of the portion 42.

Undisputedly, container 10 is formed from a single layer of material, does not have any fuel vapor barrier layer, its closures are never separated from the molded container, there is no welding, and the closures are not permanently fixed and sealed to the container around either of the ports 16, 18 of the container.

Duhaime

Duhaime discloses a blow molded fuel tank 12 with a multi-layer wall having a vapor barrier layer 24 received between inner and outer layers 20 and 22 blow molded from a multi-layer parison. As shown in Fig. 2, an end of a neck or a protrusion 26 is

severed by knives 32 to form an open nipple 36. The severed end 34 is removed and discarded or scrapped (Col 2, Line 49-50).

As shown in Fig. 4, a separate closure plug 42 is separately formed by different methods of injection molding or laminating. The plug 42 may be injection molded of a single material, a mixture of polyethylene (HDPE) and vapor barrier materials (EVOH) or laminated with layers of EVOH and HDPE materials.

After the plug has been separately molded or laminated, as shown in Fig. 3, it is inserted into the open nipple 36 and attached thereto by a fusion weld.

Undisputedly, Duhaime does not teach any compression molding of the plug, compression molding of the plug in the same mold 12 simultaneously with blow molding the container, molding the plug in flash, producing any flash while blow molding the container, and/or separating and utilizing any simultaneously molded plug to permanently close, seal and provide a vapor barrier for the opening.

Amended Claim 23

As amended, claim 23 defines a method of forming a container with an opening sealed by a cap by the steps of providing a pair of mold halves defining a first mold cavity to form a container from a parison by blow molding and an adjacent second cavity to form at least one cap in a flash section from the parison by compression molding, providing a parison with a polymeric fuel vapor barrier layer disposed between inner and outer layers of a different polymeric material which is heat weldable, closing the mold halves together to receive and compress a portion of the parison between them forming at least one flash section in the region of the second cavity and at least one cap in the second

cavity in the flash section by compression molding, providing a pressurized fluid into the parison within the closed mold halves to expand the parison in the first mold cavity to form the container and define its shape by blow molding, forming an opening through the container at a location spaced from the cap, before filling the container separating the molded cap from the flash section, before filling the container disposing the cap over the opening, and before filling the container heat welding the cap to the container circumferentially continuously to permanently attach and seal the cap to the container to permanently close, seal and provide a fuel vapor barrier for the opening.

Claim 23 is Patentable

Whether considered alone or in combination, the Kani, Arnold and Duhaime references do not disclose, suggest or teach skilled persons applicant's specific concept, method steps defined by amended claim 23 nor the significant practical advantages, all of which are part of the subject matter as a whole which must be considered in determining patentability under §103.

Kani does not disclose, suggest or teach to skilled persons blow molding a container while simultaneously compression molding anything. Rather, Kani teaches away from applicant's invention by disclosing a container with a hollow cap, both of which are simultaneously blow molded in a single cavity with interconnected sections from a parison of a single layer of material without forming any flash. This is accomplished by inserting the parison wholly within the mold cavity, closing the mold halves and then blow molding the parison in the closed mold to simultaneously form a blow molded cap with a hollow interior communicating with the interior of the blow

molded container. This cap is not removed during manufacture of the container. Rather, after the container has been filled, shipped and received by the end user, the cap is removed when the end user wants to dispense part of its contents and then releasably snapped onto the neck of the container for subsequent removal and replacement each time that the end user dispenses some of the contents of the container.

The numerous deficiencies of Kani are not overcome by the proposed combination with Arnold and Duhaime.

Arnold merely discloses blow molding from a parison with a single layer of material a squeeze container for dispensing shampoo with filling and dispensing ports formed through the container while blow molding and compression molding a releasable closures permanently connected to the container by living hinges so that the end user can repeatedly open and releasably close each of the ports both for dispensing some of the contents from the container and refilling the container.

Duhaime discloses the different approach of blow molding a container from a parison with a fuel vapor barrier layer of EVOH received between HDPE inner and outer layers and having a neck with an integral closed end. After blow molding, the end of the neck is cut off from the container and discarded as scrap. A separate plug is separately formed by injection molding or laminating and thereafter inserted in the open neck and fusion welded to it to close the neck.

None of these references nor the skill of the art contain any disclosure, suggestion or teaching to combine them to achieve applicant's method and invention as defined by amended claim 23 nor any teaching as to which of their numerous and conflicting steps should be discarded and which selected, rearranged and recombined with steps not

disclosed in the prior art to achieve applicant's basic concept, specific method as defined by amended claim 23 and its significant practical advantages. For these same reasons, none of these references nor the skill of the art contain any teaching, suggestion or motivation to combine them. Indeed, the Kani and Arnold references disclose single layer blow molding of squeeze containers having nothing to do with multi-layer fuel tanks and the techniques for producing multi-layer walls having a fuel vapor barrier layer therein and hence they are non-analogous art since they do not address the problems confronting applicant in developing a method of making a multi-layer fuel tank with an opening therethrough permanently closed and sealed by a multi-layer cap having a hydrocarbon fuel vapor barrier layer therein which is required to meet the stringent Federal environmental anti-pollution standards for automotive vehicle fuel tanks.

Furthermore, even if the Kani, Arnold and Duhaime references were combined as suggested in the Office Action, they would not disclose, suggest or teach applicant's invention and indeed would teach away from applicant's invention. The Arnold reference would simply teach to skilled persons that Kani be modified to have a compression molded closure formed with and permanently connected to the blow molded container by a living hinge to provide a releasable closure of an opening formed in the container during blow molding in lieu of the Kani dispensing opening being closed by its blow molded cap which must be cut off to dispense some of the contents of the Kani container and then releasably snapped on to the container to releasably close the opening formed by cutting off the cap. Further, combining Duhaime teaches away from the disclosures of both Arnold and Kani, and hence would not be done by one skilled in the art. However, even if Duhaime were combined, it would simply suggest another

approach of separately blow molding a container with a vapor barrier layer and a neck with a closed end, subsequently cutting off the end and discarding it as scrap to provide an open neck of the container. Subsequently, and by the different approach of either injection molding or laminating forming a separate plug and then inserting it into the neck and fusion welding it to the neck. Consequently, the proposed combination, even if made would not disclose, suggest or teach applicant's method as defined by amended claim 23 but rather teach away from this method and teach an entirely different approach of separately injection molding or laminating a plug, separately blow molding a container and severing and discarding part of the container to form an opening, and thereafter inserting the plug in the opening and attaching it to the container.

Claim 23 is also patentable under §103 over the proposed combination of Duhaime in view of Arnold and Kani because this combination of references does not disclose, suggest or teach applicant's specific concept, method as defined by amended claim 23 or its significant practical advantages. Contrary to the contention in the Office Action, Duhaime does not disclose the method invention of amended claim 23 except with the cap being simultaneously compression molded. This contention ignores and is contrary to the teaching as a whole of Duhaime which must be considered in determining patentability under §103. Viewed as a whole, Duhaime discloses a method of blow molding a fuel container with a wall having a vapor barrier layer and a neck with a closed end. The end 34 is severed from the neck and discarded or scrapped. Separately, a plug 42 is fabricated by injection molding or laminating. Thereafter, the separately fabricated plug 42 is inserted in the open neck and attached to it by a fusion weld. As indicated above, Arnold teaches blow molding of a squeeze container for shampoo with inlet and

outlet ports blow molded therethrough and compression molding closures permanently connected to the container by living hinges with the filling and dispensing ports being opened and releasably closed by the end user as needed to dispense the contents from the container or to refill the container. As indicated above, Kani discloses the blow molding from a single layer parison of both a squeeze container and a homogenously integral hollow cap which remains attached to the container while it is filled, the fill opening is sealed and the container shipped to and received by the end user. In use, the end user cuts off the cap to open the outlet, dispenses some of the contents from the container and then releasably snaps the cap onto the neck of the container to releasably close the opening produced by severing the cap from the container.

As indicated above, Arnold and Kani are non-analogous art which would not be considered by skilled persons developing fuel tank methods because of the different problems encountered. Furthermore, the teaching of Arnold and Kani are opposed to one another in that Arnold teaches a living hinge permanently connecting a releasable closure to the container and Kani teaches severing an integral blow molded cap from the container. Accordingly, even if these references were combined with Duhaime, they would teach skilled persons either blow molding a cap with the container with the end user cutting off the cap to open the container and releasably snapping the cap onto the neck of the container to close it (Kani) or modification of the Duhaime container to have a compression molded releasable cap permanently connected to the container by a living hinge and releasably and removably inserted into the open neck to close and open the neck as desired by the end user.

Since skilled persons might derive from both of these proposed combinations of the same three references the three or four different methods as discussed above, all of which are significantly different from applicant's method defined by amended claim 23, clearly these references do not disclose, teach or make obvious to persons of ordinary skill in the art the subject matter as a whole of amended claim 23.

Comments on Further Contentions in the Office Action

Contrary to the contention in the first paragraph of point 2 of the Office Action, compression molding a closure instead of blow molding a closure with a wall of the same thickness and the same material does not increase the strength of the closure.

Contrary to the contention in the second paragraph of point 2 of the Office Action, persons of ordinary skill would not modify the "method of Kani with a parison being multi-layered, as taught by Duhaime et al, in order to increase the strength and resistance of the container and closure." To the contrary, persons skilled in the fuel tank art know that vapor barrier layers, and particularly EVOH layers, have far less strength and resistance and are far more fragile and susceptible to impact damage and rupture than a layer of the same thickness of HDPE. Indeed, the poor strength and impact resistance properties of hydrocarbon vapor barrier layer polymers require multi-layer walls for vehicle fuel tanks to have layers of other polymers with high strength and resiliency to produce a commercially acceptable vehicle fuel tank which can withstand the shock loading and impact produced by a vehicle collision without rupturing.

The statement in the third paragraph of point 3 of the Office Action with respect to the cap of Duhaime is believed to be incorrect and misleading because it utilizes the

term “cap” for the severed and discarded end 34 and the same term “cap” for the separately injection molded or laminated closure plug 42 which is inserted in the open neck and then heat welded to the container. The open neck is produced by severing, removing and discarding the end 34.

Contrary to the contention in point 4, it is respectfully submitted that the selection and indeed the two different proposed combinations of the Kani, Duhaime and Arnold references is the hindsight reasoning and reconstruction prohibited in applying the non-obviousness test of §103 precisely because it utilizes the teachings of applicant’s invention to determine which of the numerous steps including several conflicting steps are rejected and which are selected, re-arranged and recombined with method steps not disclosed in the prior art to achieve applicant’s method invention as defined by amended claim 23 as a whole.

Claims 25, 26 and 28-31

Each of claims 25, 26 and 28-31 is ultimately dependent on claim 23 and hence defines patentable subject matter for at least the foregoing reasons on which claim 23 does so.

Claim 32

Independent claim 32 defines the method of forming a fuel container with an opening and a sealing cap by the steps of providing a pair of mold halves with a first cavity to form the container by blow molding and an adjacent second cavity to form a cap in a flash section by compression molding, providing a parison with at least one

polymeric hydrocarbon fuel vapor barrier layer disposed between inner and outer layers of a different polymeric material which is heat weldable, closing the mold to compress in the second cavity two overlapping portions of the parison between the mold halves to form a flash section in the second cavity and at least one cap in the flash section by compression molding with the cap having twice as many vapor barrier layers as the vapor barrier layers of the container and with the cap having two adjacent inner layers of a different polymeric material adhered together, providing a pressurized fluid in the parison to expand the parison in the first cavity to form the container by blow molding, forming an opening through the container at a location spaced from the cap, before filling the container separating the cap from the flash section, before filling the container disposing the cap over the opening and before filling the container heat welding the cap to the container circumferentially continuously to permanently attach and seal the cap to the container to permanently close, seal and provide a vapor barrier for the opening.

Claim 32 is Patentable

Claim 32 defines patentable subject matter under §103 for at least all the reasons set forth above with respect to claim 23.

Moreover, claim 32 further defines method steps which result in the cap having twice as many barrier layers as the number of barrier layers of the container and two adjacent inner layers of the different polymeric material adhered together. None of the references disclose, suggest or teach to skilled persons either this further specific concept, the method steps defined by claim 32 to produce such a cap construction nor its significant practical advantages which include greatly increasing the resistance to

hydrocarbon fuel vapor permeation through the cap closing the opening and sealed to the container. Accordingly, claim 32 defines patentable subject matter for at least these additional reasons.

Claims 33-36

Each of claims 33-36 is ultimately dependent on claim 32 and hence defines patentable subject matter under §103 for at least the reasons for which claim 32 does so.

Conclusion

As amended, all the claims 23, 25, 26 and 28-36 are believed to define patentable subject matter under §103 for the foregoing reasons and reconsideration and allowance thereof as amended is respectfully requested.

If, after considering this response, the Examiner is of the view that any of the claims are not in a condition for allowance, a telephone interview with applicant's undersigned attorney, William Francis, is requested so that immediate consideration can be given to any further amendments suggested by the Examiner or otherwise needed to place all of the claims in a condition for allowance. The Examiner is asked to schedule or initiate this interview by telephoning William Francis at (248) 689-3500 who normally can be reached Monday through Friday between 9:00 A.M. and 5:00 P.M.


We are enclosing a Change of Address for Applicant/Inventor to make a correction to applicant's address presently on file. We would appreciate your having this correction recorded in the Patent Office records.

Respectfully submitted

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Enclosure